

Claims:

1. A lead-free solder alloy comprising 1.0 - 5.0 wt% Ag, 0.01 - 0.5 wt% Ni, at least one of (a) 0.001 - 0.05 wt% Co and (b) at least one of P, Ge, and Ga in a total amount of 0.001 - 0.05 wt%, and a remainder of Sn.
- 5 2. A lead-free solder alloy as claimed in claim 1 which comprises 1.0 - 5.0 wt% Ag, 0.01 - 0.5 wt% Ni, 0.001 - 0.05 wt% Co, and a remainder of Sn.
3. A lead-free solder alloy as claimed in claim 1 which comprises 1.0 - 5.0 wt% Ag, 0.01 - 0.5 wt% Ni, at least one of P, Ge, and Ga in a total amount of 0.001 - 0.05 wt%, and a remainder of Sn.
- 10 4. A lead-free solder alloy as claimed in claim 1 which comprises 1.0 - 5.0 wt% Ag, 0.01 - 0.5 wt% Ni, 0.001 - 0.05 wt% Co, at least one of P, Ge, and Ga in a total amount of 0.001 - 0.05 wt%, and a remainder of Sn.
5. A solder ball formed from the alloy of claim 1.
6. A solder paste comprising a solder powder of the alloy according to claim
15 1 mixed with a flux.
7. A solder bump formed from the alloy of claim 1.
8. An electronic part having a plurality of solder bumps formed from the alloy of claim 1.
9. A method of joining two members comprising a step of forming a
20 soldered joint using the alloy of claim 1.